Washington Park Arboretum

BULLETIN

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Washington Park Arboretum

The Arboretum is a 230-acre dynamic garden of trees and shrubs, displaying internationally renowned collections of oaks, conifers, camellias, Japanese and other maples, hollies and a profusion of woody plants from the Pacific Northwest and around the world. Aesthetic enjoyment gracefully co-exists with science in this spectacular urban green space on the shores of Lake Washington. Visitors come to learn, explore, relax or reflect in Seattle's largest public garden.

The Washington Park Arboretum is managed cooperatively by the University of Washington Botanic Gardens and Seattle Parks and Recreation; the Arboretum Foundation is its major support organization.

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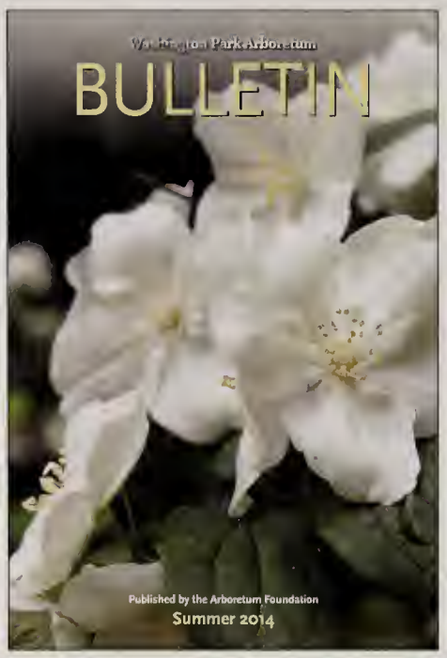
ON THE COVER: *Hydrangea macrophylla* 'Goliath' flowering in Rhododendron Glen.



Coming soon: a fully electronic version of the "Bulletin."

Going Green

Seattle is the Emerald City. The Arboretum is its most treasured green space. It is time for its Foundation to go green, too!

A special Membership Task Force made up of board members, members and staff has been reviewing our membership programs to learn how to serve you better. After talking to many of you, we came away with three clear messages: Your favorite membership benefit is this "Bulletin;" you want the Foundation to go greener in how we communicate with you; and you want your membership dues to support the Arboretum as much as possible (not to be used on "thank you" stuff like buttons, pins, hats, or other paraphernalia).

Thank you to all who participated in our focus groups. Your advice has helped us to reshape our membership levels and benefits. I will send out a more detailed message about this, but I want to share the highlights here. We will be more efficient in delivering your member benefits by going to an all-electronic monthly newsletter. At the $50 member level and above, our "Bulletin" will continue to be available as a print magazine, but you will have the option to receive it electronically.

And, while our basic member level will remain $35, members at that level will begin receiving the "Bulletin" electronically when they next renew their membership. By making these changes, we will use less paper for printing and mailing, and thus save trees. And the money we save can be used to help maintain our trees. Tree cheers for going green!

Also, last month I wrote about our planned Arboretum Loop Trail, which will make accessible many places in the Arboretum that have been too damp to traverse in the winter months. There have been some extra steps to take in the permitting process, so construction has not yet begun. We hope it will be underway by late summer.

In the meanwhile, come enjoy the relative peace and quiet of the south end of the Arboretum. I recently took a friend for a walk in Pacific Connections. The entry gardens were planted in 2008–9, and they have filled in nicely. Ah, yes, they too have quietly gone green!

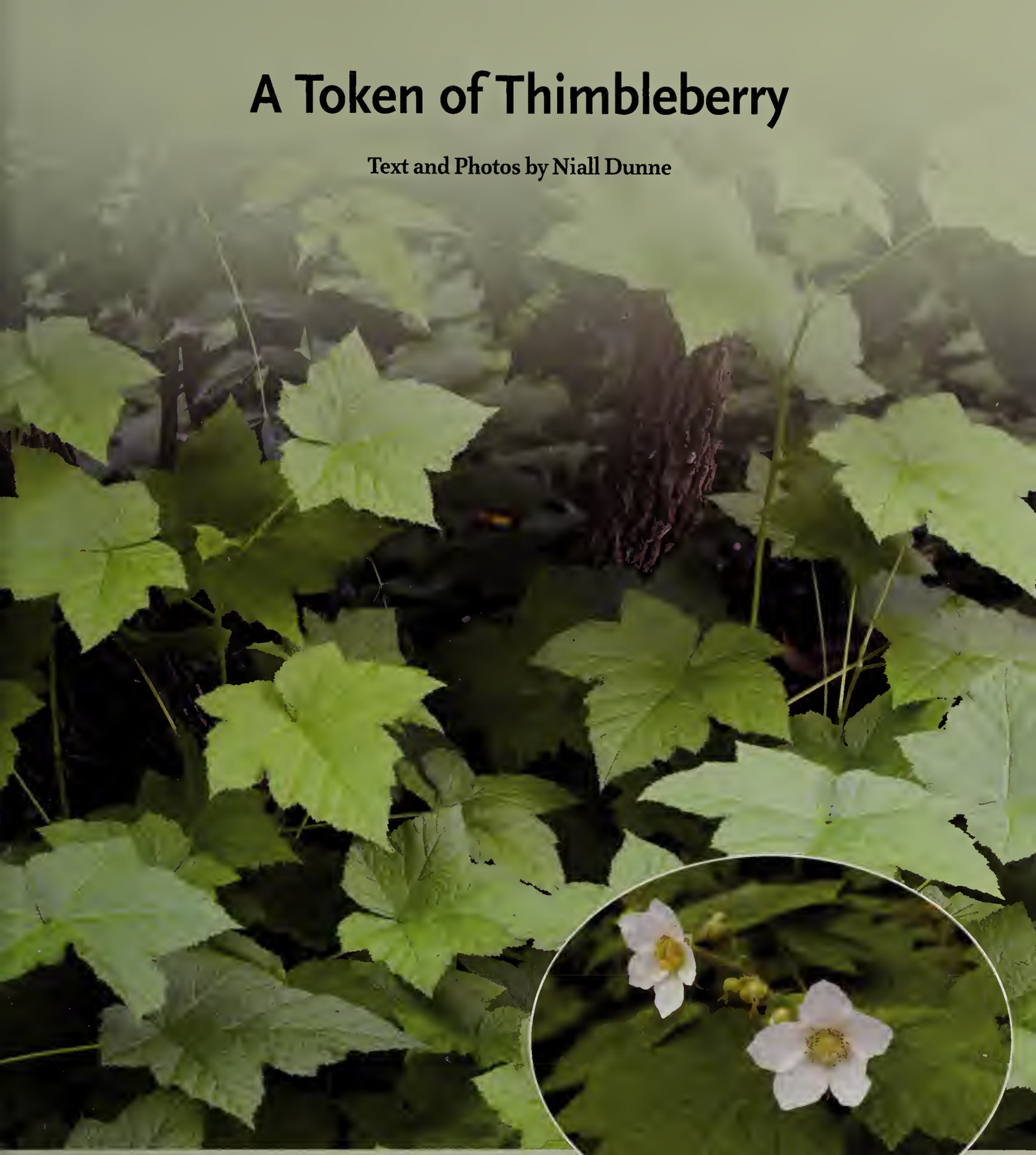
Cheers to you all,

Paige Miller

Paige Miller, Executive Director,
Arboretum Foundation

A Token of Thimbleberry

Text and Photos by Niall Dunne



Last summer, I had the pleasure of attending the wedding of my friend Tom Erler. A native plant aficionado, restoration ecologist (see "The Restoration Garden," in the Summer 2010 issue of the "Bulletin"), and staff gardener on the University of Washington campus, Tom married his lovely bride, Margaux, at a retreat in the foothills of the North Cascade mountains, surrounded by wild nature. Each guest at the wedding got to take home a unique hostess gift, which Tom and Margaux had put a lot of thought and time into: a potted-up specimen of their favorite native plant, the thimbleberry.

ABOVE: The handsome foliage and spring flowers of thimbleberry.

"The year before," says Tom, "Margaux and I sensitively harvested cuttings from a sentimental place near our wedding site and propagated them as gifts for our guests. We felt the plant represented all the things in a party favor that we'd want our gracious wedding guests to leave with: something nourishing, practical, enlightening and beautiful. Thimbleberry represented those attributes for us. It's a plant that gives us nourishment through its fruits and leaves, which we use to make tea. When we're hiking or out in the garden, we love to observe its interactions with indigenous flora and fauna. To us, it's simply the best."

A Versatile Native

Thimbleberry (*Rubus parviflorus*) is a thornless, multi-branched, deciduous shrub related to blackberries and raspberries. Native throughout much of western North America, thimbleberry makes its home in forest understories and along riverbanks, adapting to a wide variety of light and soil conditions. It does best in moist, fertile sites, where it forms tall, dense stands. The plant grows between four and 10 feet tall, producing upright, flexible stems with large, fuzzy, maple-like leaves. Showy, five-petaled white flowers sit atop the leaves in spring and develop into edible, pink to dark-red, raspberry-like drupelets. The plant disperses via the fruit, but also by fast-spreading underground rhizomes.

As far as wildlife is concerned, thimbleberry is a veritable buffet. Elk, deer, moose and bears all chow down on the plant's berries and foliage. A variety of birds (such as American

ABOVE: A stand of thimbleberry in bloom on Foster Island in the Arboretum.

robins, Swainson's thrushes and northwestern crows) and small mammals (including squirrels, chipmunks, woodrats, voles and mice) feed on the fruits. The flowers provide food for a variety of native bees and butterflies; bees also use the foliage as nesting material.

Tom and I are field partners in the UW Botanic Gardens Rare Plant Care and Conservation program, and when we go hiking in the summer, are always on the lookout for the yummy fruit of the thimbleberry. To my palate, its sweet-tart flavor is uniquely delicious—landing somewhere between raspberry and rhubarb. Many Native American tribes along the Pacific Coast ate thimbleberry fruits—either fresh or preserved for later use. The fruits are high in vitamin C, as are the edible young shoots. Tea made from the leaves has long been used as a medicinal to treat stomach complaints and anemia.

"Word is that the plant also is the Pacific Northwest's number one natural toilet paper," says Tom, "but I can't comment about that on the record."

Large-Leaf Texture

When it comes to using thimbleberry in a garden setting, Tom waxes poetic: "The form it takes in a hospitable place in large drifts or along a path becomes a densely textured mosaic of pentagonal patterns that repeats itself in perpetuity," says Tom, "which is aesthetically pleasing to any design aficionado."

His sentiment is shared by Roy Farrow, UW Botanic Gardens horticulturist at Washington Park Arboretum, whose many responsibilities include keeping the bed and planters around the Graham Visitors Center looking spectacular. Thimbleberry has a strong presence in the Arboretum, forming a notable part of the park's native understory matrix—but also naturalizing into more formal areas, such as the mixed border around the Graham Visitors Center terrace. In summer 2015, UW staff will be renovating the courtyard plantings and replacing much of the thimbleberry with a *Hydrangea quercifolia* cultivar that offers similar texture but also summer flowers (which are lacking in

ABOVE: Thimbleberry knitting together collection plants on the terrace at the Graham Visitors Center. In summer 2015, much of it will be replaced with *Hydrangea* cultivars that offer all-season interest.

INSET: The raspberry-like fruit of thimbleberry.

the beds), good fall color and exfoliating bark. However, Roy still appreciates what this interloper has brought to terrace for many years.

"From a decorative perspective," says Roy, "I've really liked thimbleberry for the courtyard because it brings a large-leaf texture that is cooling and naturalistic. Moreover, because thimbleberry spreads underground, it can blend into the specimen plants and tie everything together. This effect can be tricky to achieve using multiple individual, non-spreading plants. If a thimbleberry stem grows out of place, removing it is easy enough. I've done quite a bit of that! But the plant is very easy to work around, due to its lack of thorns. In a well-mulched soil, its rhizomes are just under the surface and are easily removed individually. The trouble is that there never is just one!

"Because of its toughness, I can cut it back every year for extra-large leaves in spring.

The foliage of *Ribes bracteosum* closely resembles that of thimbleberry. (Photo by Walter Siegmund, courtesy Wikipedia Commons)

Thimbleberry Alternatives

By Roy Farrow

Rubus parviflorus has many fine attributes, such as attractive flowers, tasty red berries and excellent large foliage. The plant's ability to grow well—and in a well-behaved fashion—in dry shade is a positive counterpoint to its potential ability to take over a small garden with moist and fertile soil.

In looking for a less-aggressive alternative, it is difficult to replicate all the attributes of *R. parviflorus*. My favorite alternative plant is *Ribes bracteosum*, commonly known as stink currant. While hiking in the Puget Sound region, you'll often find this currant growing side by side with thimbleberry. In fact, it can take an observant eye to know that you are looking at two different species. Stink currant, like thimbleberry, has airy, maple-like foliage and edible berries. The flowers of *Ribes bracteosum* are more interesting than showy, but that is a small price to pay for it not threatening to push other plants out of your garden. (Note: Native *Ribes* are susceptible to blister rust, which can pose a threat to nearby white pines. See page 23.)

If you are looking to replicate the foliar effects of thimbleberry, your choice will depend on your growing conditions, available space and other factors. Shrubs or dwarf trees that might duplicate the foliar effect of *Rubus parviflorus* include *Viburnum* (e.g. *V.* ×*juddii* for stunning fragrance, *V. plicatum* for showstopping flowers, and *V. dilatatum* for a brilliant-red berry display) and *Acer* (e.g. *A. circinatum* 'Little Green', *A. sieboldianum* 'Sode no uchi' and *A. shirasawanum* 'Aureum').

Another shrub genus that might replace *Rubus* in your garden is *Hydrangea*, particularly *H. serrata* and *H. quercifolia*. Or for the most daring of gardeners (who have no qualms about spiny stems and foliage), I would suggest our native devil's club (*Oplopanax horridus*) for its dramatic presence.

You may not consider perennials as a replacement for a shrub, but there are some that would do the job. *Kirengeshoma palmata* does well in shade, has handsome foliage and surprises you with buttery-yellow bells in late summer. Other perennial plants that ought to be considered are *Aruncus dioicus, Darmera peltata* and *Osmunda regalis*.

Roy Farrow is a UW Botanic Gardens horticulturist at Washington Park Arboretum.

Or I can cut it down in midsummer to keep it low and more of a groundcover. It can really make a garden area, but it might require substantial yearly managing.

"Thimbleberry also serves a more pragmatic purpose in the Arboretum," adds Roy. "It appears to be an imposing barrier, so it's very useful for keeping people from entering sensitive areas or for simply providing visual separation. In reality, you can just walk right into it and back out, and neither you nor the plant suffers for it.

"In a nutshell, I love to use thimbleberry, but it requires commitment. It has many great benefits, but somehow—in a way—it's taken for granted and hard for many folks to get excited about."

Small Garden Suitability?

I returned home after Tom's wedding with my thimbleberry gift in hand, and I planted it in my tiny Ballard garden in fall. It looks wonderful, but—having researched the plant a bit—I am a little concerned about its suitability in a small, urban-garden setting.

In her new book, "Real Gardens Grow Natives" (Mountaineers Books, 2014), Eileen Stark says plainly, "Due to its spreading habit, this plant may not be suitable for very small gardens." What? Did I mention my garden is TINY!

In his classic "Gardening With Native Plants of the Pacific Northwest," Arthur Kruckeberg writes, rather ominously, that thimbleberry is "best limited to naturalizing in wilder and wetter sections of a suburban garden." Do I have to move out of town to enjoy the sights and taste of thimbleberry in my back yard?

Maybe...or maybe not! As Roy has demonstrated at the Visitors Center terrace, the plant can be successfully integrated into a small space if one is conscientious about keeping it under control. It certainly is a fast spreader in a rich, moist, well-mulched soil. But unlike blackberry and many other *Rubus*, thimbleberry doesn't have thorns, so it's relatively easy to manage.

Roy says it's even easier to manage if you plant it in a dry, shady spot—such as under a coniferous tree. "Thimbleberry can tolerate the conditions quite well," he says while—at the same time—you don't have the problem of overaggressive spread."

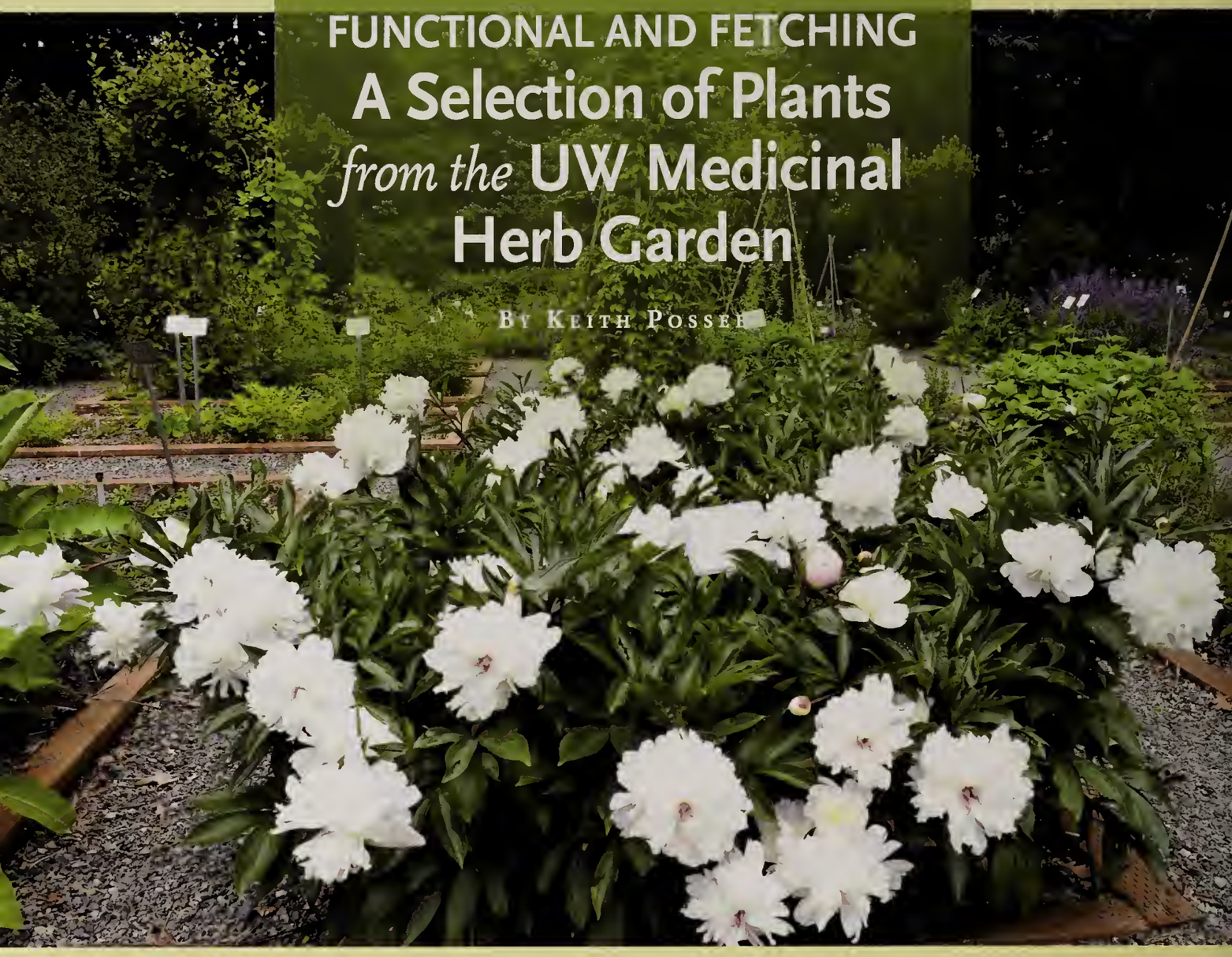
Tom's answer to the charge of thimbleberry being too aggressive is a pretty big-picture one, referencing the plant's evolutionary history and challenges: "Thimbleberry isn't weedy!" he says with a pinch of irony. "It's just compensating for how loved it is by almost everything that enjoys delicious berries, tasty leaves, dappled shade on a hot day, and shelter from a spring shower in the Pacific Northwest. There's been a competition for the plant's berries, new shoots, pollen and leaves playing out for thousands of years, and now it's 'weedy'! Good thing for us I suppose!"

To sum up, Tom says, "I love thimbleberry for its strength of character, generosity in abundance, and uplifting and indomitable spirit (AKA weediness)."

I do, too, and I plan to keep it in my garden, as reminder of the beauty and robustness of our Northwest flora—and of a special moment in the life of a friend. But that doesn't mean I won't be keeping a watchful eye on it!

Niall Dunne is the editor of the "Bulletin" and the communications manager at the Arboretum Foundation.

ABOVE: Thimbleberry gracing a border along Azalea Way in the Arboretum.



FUNCTIONAL AND FETCHING

A Selection of Plants *from the* UW Medicinal Herb Garden

By Keith Possee

The University of Washington Medicinal Herb Garden is located on the UW's Seattle campus— along Stevens Way, between Benson Hall to the west and Rainier Vista to the east. Operated by the Biology Department, the two-and-a-half-acre garden contains approximately 1000 plant species from around the world, laid out in a network of formal beds and wooded borders. Not all of the plants are medicinal: The garden also features plants that are grown for food, fiber, dye and ceremonial purposes. (In recent years, for example, I've been growing a bed of South American food plants, including oca, yacon, jaborosa, tarwi, anyu and, most recently, tamarillo.) Along with being useful, many of the plants have wonderful ornamental characteristics. Below is a small sampling of some of my favorite plants growing in the Herb Garden. Stop by to take a look. The garden is free and open to the public 365 days of the year!

Pomegranate (*Punica granatum*)—native to the southern parts of central Eurasia, from Iran to northern India—does well in Seattle. It's a hardy, deciduous shrub or small tree that produces beautiful red flowers in summer, followed by fruits that persist through fall and winter, dangling from the branches like Christmas ornaments. I have several specimens growing in the garden's borders. Visitors are generally surprised that we can grow pomegranate in Seattle, but the plant is hardy to about 10 degrees F and likes a dry growing season, such as ours. That said, our lack of intense summer

ABOVE: Chinese peony (*Paeonia lactiflora*) blooming in the UW Medicinal Herb Garden in May.

TOP LEFT: Pomegranate (*Punica granatum* 'Pleniflora') blooming by the Big Greenhouse in Washington Park Arboretum, in July.

TOP RIGHT: Snowbush blooming in the UW Herb Garden in May.

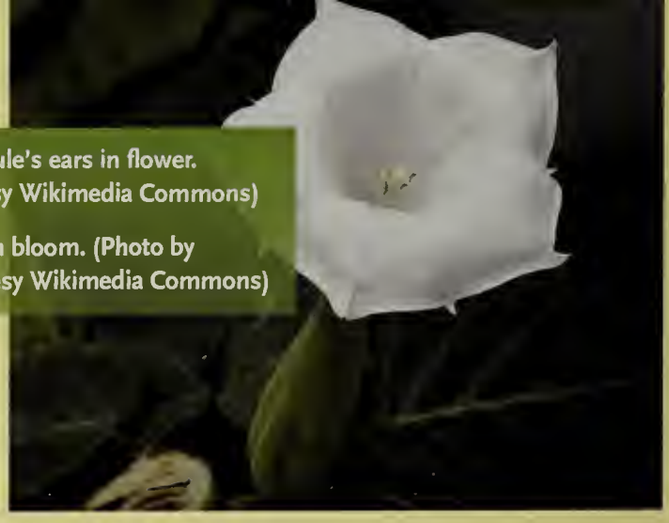
BOTTOM LEFT: Flannel bush flowering in the Herb Garden in May. (Photos by Niall Dunne)

BOTTOM RIGHT: Butterfly weed in bloom. (Photo by Sage Ross, courtesy Wikimedia Commons)

heat keeps pomegranate from producing the sort of full-size, mature fruits you see at the produce stand. In traditional Chinese medicine and Ayurveda, the dried fruit rind of the pomegranate is used to treat an array of disorders, including diarrhea and dysentery.

Flannel bush (*Fremontodendron californicum*) is an evergreen shrub native to northwestern Mexico, Arizona and central to southern California. A versatile plant, it grows from the lowlands up to altitudes of 7000 feet in the mountains. I've planted it throughout the garden borders, where it has done well. A dry, rocky, south-facing slope would be an ideal home for it, but any spot I've tried with sun and good drainage in the Herb Garden has worked. Flannel bush gets its name from the fuzzy texture of the fibers on the plant's leaves and bark. In spring it produces masses of large, showy, long-lasting, rich yellow flowers. These are followed by bristly, conical seed capsules, which are often barren on Herb Garden specimens, but sometimes produce a seed or two. Native Americans used the plant's inner bark sap as a remedy for gastrointestinal upset; they also used the wood to make furniture and more.

A small- to medium-sized evergreen shrub, snowbush or mountain whitethorn (*Ceanothus cordulatus*) is native to the mountains of Oregon, Nevada, California and Baja California. It is growing in our xeriscape bed, close to a chaste tree (*Vitex agnus-castus*). In this bed, where it receives no supplemental summer water, it stays under five feet tall, much as it would in the thin, dry soils of its home territory. But in both our border areas, which receive regular watering and have deeper, richer soils, the snowbush has grown to at least 12 feet tall and just as wide. The smooth, silvery-white bark; large clusters



LEFT: Narrow-leaved mule's ears in flower. (Photo by Tom Hilton, courtesy Wikimedia Commons)

RIGHT: Sacred datura in bloom. (Photo by Paulo Pedro P. R. Costa, courtesy Wikimedia Commons)

of fragrant white flowers in late spring and early summer; and sprawling habit help set snowbush apart from the usual nursery offerings of *Ceanothus*. I started ours from seed collected in the wild by the staff of the Santa Barbara Botanic Garden. Native Americans used the leaves of this and other *Ceanothus* species to make herbal tea.

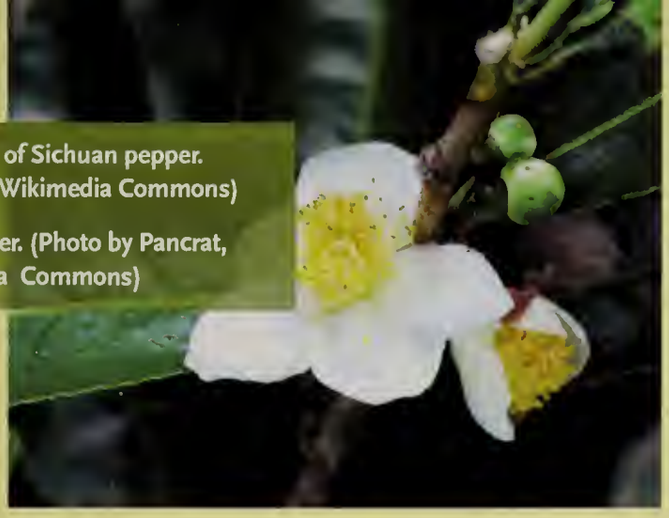
The brilliant orange flowers of butterfly weed (*Asclepias tuberosa*)—also known as pleurisy root—attract butterflies and hummingbirds from midsummer to early fall. Best of all, this herbaceous perennial from eastern North America is drought tolerant, looking healthiest in our xeriscape bed. It does well enough in an irrigated bed in section C of the garden (there are seven sections altogether), but the plant seems to last longer in our region when grown in loose, well-drained soil in full sun. The xeriscape bed is mostly pumice mounded higher than the surrounding ground, and this—in my experience at the Medicinal Herb Garden—seems to be a good combination for growing plants like butterfly weed that aren't well adapted to Seattle's wet winters. Native Americans used the roots, flowers, seed pods and young shoots of butterfly weed for food; it was also used to treat ailments such as pleurisy, dysentery and rheumatism.

Always in search of low-maintenance plants to grow in the garden, I've been pleasantly surprised by narrow-leaved mule's ears (*Wyethia angustifolia*), a perennial herb native from southwestern Washington through California. It is well-adapted to our area and has been doing fine in both a dry border area and an irrigated bed in the Herb Garden. It tends to spread and sprawl, so a wild, sunny border/meadow area would be ideal. The dense stands of bright-yellow, sunflower-like blossoms in late spring and early summer make an eye-catching display. The seeds and young leaves are edible for humans and good forage for birds and other small animals. The roots and leaves have also been used medicinally to treat sore throat, hay fever and hemorrhoids.

Sacred datura (*Datura inoxia*), hardy to USDA Zone 9, is functionally an annual in the Medicinal Herb Garden; I start it from seed in the greenhouse every spring. But across campus, at the well-drained edge of a stone wall, in a sheltered, sunny spot beneath the cover of a red cedar (*Thuja plicata*)—where it stays dry all

A Short History of the Herb Garden

The University of Washington's Medicinal Herb Garden was established by the Pharmacy Department for teaching purposes in 1911. In 1979, when many budgets were being cut, Pharmacy stopped funding staff positions for the garden. The Botany Department (now part of the Biology Department) stepped in and assumed control of the garden, though with no additional funding for support staff. For two decades, an all-volunteer, nonprofit group, Friends of the Medicinal Herb Garden, valiantly helped to keep the garden from succumbing to neglect. Since 2000, there has been one full-time staff person curating the garden. At two-and-a-half acres, the garden is one of the largest of its kind in the country. For more information, visit www.biology.washington.edu/mhg.



LEFT: The ripening fruits of Sichuan pepper. (Photo by Kenraiz, courtesy Wikimedia Commons)

RIGHT: A tea shrub in flower. (Photo by Pancrat, courtesy Wikimedia Commons)

winter—it has grown as a perennial for many years. Microclimates are so important to tender perennials, especially plants from dry regions that are slightly out of their optimal climate zones here (ask my olive trees!). The large, fragrant white flowers of sacred datura appear from summer to fall and are pollinated by night-flying sphinx moths. The fruits are spiky and the size of golf balls, with flat brown seeds that drop directly beneath when the fruits dehisce. Ants, attracted to the nutritious elaisomes (fleshy structures, rich in protein and lipids) on the seeds, help to disperse them away from the parent plant. In very small doses, the seeds, leaves and roots are used by shamans and other traditional healers in Central and South America (where the plant is native) for a variety of healing purposes, but all parts of sacred datura are highly toxic.

Sichuan pepper or huan jiao (*Zanthoxylum simulans*) from China and Taiwan has won a rightful place in the Herb Garden as an excellent border plant that stays under 15 feet tall. I've planted it near shortcut paths that have needed decommissioning, and it does a good job of blocking foot traffic. It is an imposingly thorny, deciduous shrub with strongly aromatic foliage. In spring, tiny yellow flowers are borne on slender cymes and develop into green fruit about the size of a small pea. The fruits turn red as they ripen, and finally brown before splitting open and exposing the shiny black seeds within. The seed husks—which are used in Chinese cooking and are one of the ingredients in five-spice powder—contains hydroxy-alpha-sanshool, the compound that is believed to cause the tingling sensation we feel when we chew on them. The husks, seeds, bark and leaves are all used in traditional Chinese medicine for a variety of health conditions. The *Zanthoxylum* genus, part of the rue family, is widespread and includes both Old and New World plants. The rue family includes citrus trees, and there is a hint of citrus in the fragrant foliage and fruit of the many *Zanthoxylum* species.

The hedge of tea shrubs (*Camellia sinensis*) around section A in the Herb Garden often goes unnoticed. Tea flowers in late autumn and winter, when the garden sees fewer visitors and the plant is just one of many broad-leaved evergreen shrubs that thrive (yes, thrive) in the Pacific Northwest. When most people think of tea, they probably envision misty tropical highlands with lightly clothed people in conical straw hats methodically picking the tender new leaves. Luckily, many varieties of tea do well in Seattle. Even when we get our occasional spell of winter weather that gets below 20°F, when I have to cover my olive trees, manuka and lemon verbena, the tea hedge suffers no apparent damage. It produces the tender new growth used to make tea from late spring to early summer. I've processed both green and black tea from Medicinal Herb Garden plants, and I'd say the green tea has generally been of higher quality, often with a distinctive floral taste combined with a hint of green papaya. I'm still working on my technique. Tea plants are getting easier to find at nurseries and they should be more widely planted in Seattle. As a hedge or a specimen, they make excellent conversation pieces and dependable, trouble-free shrubs. ~

Keith Possee is the gardener at the UW Medicinal Herb Garden.

OFF THE BEATEN PATH:
Hidden Treasures of the Arboretum

Enchanting *Ehretia*

By Daniel Mount

When Northwest gardeners think of the borage family (Boraginaceae), herbaceous genera like *Pulmonaria, Brunnera* and *Cerinthe* usually come to mind. But this circumglobal family of 150 genera and 2700 species is also host to many tropical and sub-tropical trees and shrubs. Two of these woody genera, *Cordia* and *Ehretia*, are hardy in temperate zones.

There are two representative of the genus *Ehretia* in the Arboretum. A specimen of the largeleaf ehretia, *Ehretia dicksonii*, came to us from Dan Hinkley in July of 1990. It was planted out in 1992, next to an older *E. acuminata* along a gravel path leading from Azalea Way to Rhododendron Glen, just north of Azalea Way Pond. It can be immediately recognized by its corky, deeply furrowed bark and leathery leaves. In little over 20 years, it has become a robust tree over 40 feet high and is one of the rare summer-bloomers in the Arboretum.

In his book "Trees of Seattle," Arthur Lee Jacobson reports only three *Ehretia dicksonii* in the Seattle area, including the Arboretum's

ABOVE: *Ehretia dicksonii* in flower. **OPPOSITE TOP:** *Ehretia acuminata* in bloom.

OPPOSITE BOTTOM: The fruit of *E. dicksonii.* (Photos by Denis Prévôt, courtesy Wikimedia Commons)

single specimen. This despite the fact that the tree is quite attractive, producing copious, fragrant white flowers in dome-like cymes from mid-July to mid-August, followed by clusters of cherry-sized yellow fruits, which are favored by birds. The species is native to open forests in China, Japan, Bhutan, Vietnam, Taiwan and Nepal. It was introduced into cultivation in the West by the famed English botanist Ernest Wilson. (See "The Arnold Arboretum, Part 2: The Explorers," page 14.)

On his website, Jacobson says he's aware of just a single *Ehretia acuminata* in the Seattle area, and that's the one in the Arboretum. This specimen—our plant is still labeled with the old name *E. thyrsiflora*—came to us from Brian Mulligan's private collection in 1978 as a four-foot sapling. He had received it from the Morris Arboretum outside Philadelphia, a provenance that might indicate a very hardy tree. When it was planted out in 1983, it had already reached the height of eight feet; but it has barely doubled in size in the last 30-odd years. Its foliage is longer and more pointed than that of *E. dicksonii*. (The specific epithet, *acuminata*, translates to acuminate, which means "tapering to a long point" in botanical lingo.) The plant's fragrant, white summer flowers, produced in loose, open panicles—that Jacobson compares to those of privet—are also followed by yellow fruits.

Ehretia acuminata is one of the widest-ranging members of the genus, which comprises about 50 species altogether. It grows wild in China, Japan, Nepal, Vietnam, New Guinea and Australia, among other countries, and is quite variable within its range. (The common name of the plant "Down Under" is Koda tree.) It can reach nearly 90 feet in height and is used throughout its range as a lumber tree for building and making furniture. Though a minor player in the Chinese pharmacopoeia, it—along with many other members of the genus—is being studied for its complex alkaloids, which may have anti-inflammatory properties.

Daniel Mount is an estate gardener, garden writer, and member of the "Bulletin" Editorial Board. He lives on a small farm in the Snoqualmie Valley. Read more of his reflections on plants and gardening at www.mountgardens.com.

Celebrating Ehret

The genus *Ehretia* is named for the German botanical artist Georg Dionysius Ehret (1708-70). Born into a family of Heidelberg market gardeners, Ehret developed a keen interest in plants at an early age. His skills as an illustrator and botanist brought him in contact with many important naturalists and patrons, most notably Linnaeus, with whom he learned the finer aspects of botanical science. Ehret is admired to this day for his sumptuous Rococo style and exacting botanical accuracy. He spent the later half of his life teaching botanical illustration to the daughters of English aristocracy, many of whom became important botanical artists themselves. Pictured left is Ehret's illustration of *Selenicereus grandiflorus*, from "Plantae Selectae" (1750).

Arnold Arboretum, Part 2: The Explorers

By Walt Bubelis

I've long thought of the Arnold Arboretum as one of the premier arboreta of the world. So many giants and notable figures of the botanical world have passed through there or had an association with the Arnold and/or Harvard University, the institution responsible for its plant collections.

Although Bartram's Garden in Philadelphia was the first botanic garden in America (founded in 1728), it was a private garden until 1891 and did not feature a systematically arranged plant collection. Harvard started the trend of publicly accessible botanic gardens in this country in 1807, with a seven-acre site in Cambridge. Famed botanists Thomas Nuttall and Asa Gray were among those responsible for its upkeep over the years. As plant exploration brought increasing numbers of plants to Cambridge, it eventually became obvious that the garden had outgrown its original site—and the Arnold was born.

Enabling Asa Gray

As we learned in Part 1 of this article (see the "Bulletin," Spring 2015 issue), Charles Sprague Sargent, son of a successful Boston merchant and railroad financier, was a major player in the development of the Arnold Arboretum. When he was hired as the new Arboretum's first director

in 1873, it wasn't so much due to his credentials —which were rather lean to begin with—as the recommendations of family friend Francis Parkman, and perhaps banker and philanthropist Horatio Hunnewell, who later donated funds for the creation of the Arboretum's visitor and educational center.

Sargent joined the staff of Asa Gray, who had been both the supervisor of the Harvard Botanic Garden and a professor of natural history at the university since 1842. Gray struggled for years to find the time to revise and complete his groundbreaking "Flora of North America," co-authored with John Torrey. Gray's plea for help to then-president of Harvard Charles Elliot resulted in Sargent being appointed as Arboretum director and three other specialists being hired.

Wanting to learn from Gray, and to give him more time to finish his book, Sargent— without Gray's knowledge—convinced his father and Hunnewell to donate $500 each per year to Harvard, with the proviso that Gray be relieved from his active duties in the college. This allowed Gray to devote all his time to research and writing—and helped him cement his reputation as the most important botanist of the 19th century.

Sargent Explores Japan

One element of Asa Gray's writings intrigued Sargent so much that it inspired him to visit eastern Asia on a plant-hunting expedition. It also had a lasting influence on the kind of plants Sargent chose to showcase at the Arnold Arboretum. Although other scientists, including Linnaeus, had noted a close similarity between the plants of eastern Asia and eastern North America, Gray was the first botanist to offer scientific explanations of this phenomenon, with detailed lists of relationships.

Sargent decided to botanize in Japan rather than China, due to time pressures and his own physical limitations. He arrived in the fall of 1893 and set about collecting seed of plants he thought should prove hardy in New England. He was assisted by Japanese botanists, including Professor Kingo Miyabe, and by the English horticulturist James Veitch, both of whom later became valuable sources of additional seed.

In the 10 weeks that Sargent was in Japan, he managed to collect seed of almost 200 species and varieties, along with 1225 sets of herbarium samples. He wrote about his trip in the "Forest Flora of Japan," which you can read for free

RIGHT: Charles Sprague Sargent, circa 1904. (Prints and Photographs Division, Library of Congress)

OPPOSITE PAGE: Wilson's magnolia (*Magnolia wilsonii*) in Washington Park Arboretum. The plant was named after Ernest Henry Wilson, who discovered the plant in China in 1904.

online at the Biodiversity Heritage Library (www.biodiversitylibrary.org). Sargent's interest in procuring more hardy Asian plants was thoroughly awakened.

Ernest Wilson with walking stick standing outside inn with wooded hillside behind. Korea, 1917. (President and Fellows of Harvard College, Arnold Arboretum Archives)

Wilson and the Dove Tree

About this time, contact had been made with an Irish doctor, Augustine Henry, who was working for the Imperial Chinese Customs Service. Henry had so much free time on his hands that, to relieve the boredom, he turned to collecting plants. He sent herbarium specimens to both Kew Gardens in London and the Gray Herbarium at Harvard. What he sent from the region around I-Ch'ang, a town along the Yangtze River, caught the eye of both Sargent and Harry Veitch, James's uncle and the owner of the famous Veitch Nurseries of England.

The Veitchs decided to send Ernest Henry Wilson, a relative newcomer to horticulture, to collect plants there. Veitch Nurseries had already sent the botanist Charles Maries to China and Japan in 1877 but did not realize much from his collections. They feared that Robert Fortune and other collectors before him had exhausted anything worthy of the Chinese flora—until they saw Henry's examples. Wilson was directed to study Henry's collection and, in 1899, to set sail for China.

He made a stopover in Boston and, while there, spent time with Sargent learning more about packing and shipping seeds for long voyages. Each formed a favorable impression of the other, and this would pay off handsomely later.

Wilson was to meet up with Henry in China to learn of the location of the plant most desired by the Veitch firm, the dove tree, *Davidia involucrata*. However, it took Wilson four months to reach Henry, then stationed in the Yunnan province. All kinds of difficulties confronted Wilson. The Boxer Rebellion, the aim of which was to drive out foreign imperialism and Western missionary activities, was in full swing. This delayed him reaching Hanoi in French Indochina. Speaking no French or Chinese also posed a problem, as he was mistaken for a spy. Eventually, Wilson was able to travel northward to rendezvous with Henry, who had to leave soon thereafter but gave the Englishman a rudimentary map to follow to the sole dove tree he had managed to locate.

When Wilson did reach the desired village, he was shown first a large stump and then the pride of the village, a newly constructed barn made of the dove tree. Downcast, Wilson thought he might have to travel even farther west to where Père Armand David had originally found the plant in 1869. Luckily, he came across a 50-foot-tall tree in full bloom in another nearby valley; he was so entranced by the sight that he thought it the most beautiful of all hardy trees. He found 10 other dove trees in the mountains south of I-Ch'ang that summer and collected seed in the fall to send back to England ahead of his return.

After almost two years in the field, Wilson returned to England with herbarium samples for Kew of over 2500 species and hundreds of seeds and bulbs for the Veitch Nursery. Many of these—such as *Rhododendron discolor, Magnolia delavayi* and *Abies fargesii*—were welcome additions to the horticulture scene of the day. Gathering seed from the dove tree brought Wilson the most fame. Although the seed he sent ahead would take years to flower and bear fruit, his photographs promised much.

Recruiting Wilson for the Arnold

On Wilson's second trip to China for Veitch (1903–06), he collected many rhododendron seeds and herbaceous plants but didn't receive the same acclaim for his achievements as he did on his first trip. During this same time, Sargent invited John Muir to accompany him on a journey across Europe to Siberia. They gathered many herbarium specimens on their trip, but—much to his regret—Sargent still hadn't personally collected in China.

Although Arnold Arboretum staff member John George Jack had collected on his own in Japan and Korea in 1905, the results did not impress Sargent. Sargent set his sights on engaging Wilson's services. He traveled to England via South America with this purpose in mind. After some wrangling over salary and responsibilities, Wilson agreed to Sargent's proposal. The opportunity to re-collect in China was too great for Wilson to ignore.

William Purdom in brigand costume, Tibet, circa 1911. Portrait from "Eaves of the World," by Reginald Farrer, 1917.

Admiring Meyer

Wilson lost no time in reaching China in January 1907. He rendezvoused in Shanghai with another intrepid collector, Frank Meyer, a Dutch immigrant who worked for the Foreign Plant Introduction Section of the U.S. Department of Agriculture (USDA). Meyer had already been sent to the Arnold Arboretum to study Augustine Henry's collections, and had received advice from Sargent on collecting and how best not to overlap with Wilson's efforts. Meyer sent duplicates of his cuttings of trees and shrubs to both the Arnold Arboretum and the USDA, along with photographs of the plants and the landscape.

I much admire Meyer and his diligent work. He collected ornamentals, such as the Bradford pear and the Meyer lilac, but also many more plants of agricultural value. He had an eye for anything that exhibited desirable traits, such as hardiness, sweetness, lack of seeds, disease resistance, adaptability and so on. The horticultural and agricultural world lost an invaluable person during his fourth trip to Asia in 1918, when he drowned in the Yangtze River under suspicious circumstances.

Wilson had a much easier time on his third trip, exploring western Hubei and western Sichuan, and ended up bringing back over 3500 specimens to the Arnold Arboretum.

Purdom's Peony & Wilson's Further Travels

After his three successful expeditions, Wilson thought it was time to stop collecting in China for a while and analyze what had already been collected. Sargent, however, thought otherwise and went back to England to enlist Harry Veitch's help in organizing a joint expedition. The man chosen this time was William Purdom, a former Veitch Nurseries employee then at Kew.

Purdom also received extra training from both Kew and the Arnold

Joseph Rock on horseback in Tibetan dress. (President and Fellows of Harvard College, Arnold Arboretum Archives)

Arboretum. Once he arrived China in 1909, he made contact with Wilson who, about to return home, gave him further advice on sites and collecting. Purdom collected mainly in the Shensi and Kansu provinces near the Tibetan border. He didn't find much new material and often duplicated Wilson's efforts. His main success was collecting the wild moutan or tree peony (*Paeonia suffruticosa*), which the Chinese had cultivated for hundreds of years.

Upon his return from China, Wilson agreed to work in the Herbarium of the Arnold Arboretum," reviewing his collection specimens. However, he was ill-prepared for much of the taxonomic work and so was more than happy to undertake a second trip for the Arnold to China in 1910. Conifers and lilies were to be his main focus, and in neither did he disappoint. It was on this trip, however, that his leg was crushed during a landslide. While bandaged in a temporary splint, Wilson had to lie astride a narrow path above a steep river gorge while the mule train gingerly picked its way over him. He almost lost his leg due to sepsis and limped on it for the rest of his life.

Back in Boston, Wilson was asked to continue reviewing his herbarium specimens and to publish the results. Again, he didn't relish the task, and it took him more than six years to complete "Plantae Wilsonianae," and that was with major assistance from staff taxonomist Alfred Rehder. Wilson did enjoy writing a delightful travel book, "A Naturalist in Western China," in which he put down his thoughts and opinions freely. (This book is also available for free in digital form on www.biodiversitylibrary.org.)

Wilson Explores Japan

Another chance to get back into the field came in 1913, when Sargent suggested that Wilson take his wife and daughter to Japan. Japan was by this time accessible in all corners by public transportation and had been combed through by many other plant explorers. Wilson did collect herbarium specimens of at least 92 percent of Japanese woody plants and some 67 named living cultivars of Japanese cherries. He was most pleased, however, to introduce to the West the Kurume azaleas (selections of *Rhododendron kiusianum* and *R. kaempferi* and their hybrids), bringing back some 50 cultivars.

Pleased that his leg, shortened from the Chinese accident, hadn't hampered him in Japan, Wilson began exploring more rugged territory once again. First, in 1917, he started in the Ryukyu Islands south of Japan, traveling then to Okinawa, and lastly to Korea. Then, based in Japan, he revisited Korea and headed to Formosa (now Taiwan), being among the first to delve into its flora. He plunged ahead through thick forests and even climbed the highest peak, Mount Morrison (13,000 feet) during a typhoon! Seed of the conifer *Taiwania cryptomerioides* was one of his prizes.

As this sixth trip to the Orient—his fourth under Sargent—was to be Wilson's last, Harvard awarded him an honorary Master of Arts degree. With Sargent's recommendation, he was also appointed assistant director of the Arboretum.

Joseph Rock in China

Although Wilson was no longer actively collecting, Sargent, now in his eighties, still wanted more out of China. In 1924 he hired Joseph Rock, an Austrian by birth. Already, Rock had collected in remote areas of the Philippines, Java, Malaya, Siam (now Thailand) and India for the USDA. On his own, he ventured into southwestern China (Yunnan province), collecting over

80,000 herbarium specimens, along with seeds and 1600 bird skins.

Rock was a true eccentric, letting his curiosity and wanderlust dictate his agenda in many cases. He would frustrate his employers by not reporting in from the field, and by staying out in the field to oversee the best time to collect seed. He had an eye for the best in anything he came across, selecting the deepest, richest flower color or texture and form in a plant. Many rhododendrons exist in the trade today with the Rock collection number attached to the label as evidence of their horticultural value.

Over the course of two years in the field (Yunnan province, northwestern China and northern Tibet), Rock passed through territory that was barren of interesting plants for the most part but did manage to collect some 250 species, mostly herbaceous in nature. Before Rock could return to Boston, Sargent passed away, in March 1927, just shy of his 86th birthday. Wilson assumed temporary charge of the Arboretum and asked that Rock return to Boston.

Wilson's Final Years

Oakes Ames, a professor of botany at Harvard, was chosen as Sargent's successor. Ames recognized that Wilson would be an effective overseer of the living collections; his suggestion to the University of granting Wilson the title of "keeper" was in line with staff positions in British institutions. Wilson commenced soon thereafter with renovating the lilac collection, thinning the Chinese plant collection, and adding new Japanese flowering cherry cultivars. Wilson honored Sargent through massive plantings of one of his friend's favorite Northeast natives, the mountain laurel (*Kalmia latifolia*), and of the torch azalea (*Rhododendron kaempferi*), a species Sargent had introduced from his 1892 trip to Japan.

Wilson also found time to publish four popular books about/inspired by his collecting: "Plant Hunting" (2 vol. 1927); "More Aristocrats of the Garden" (1928); "China, Mother of Gardens" (1930) and "Aristocrats of the Trees" (1930). (Many of his books are available for free online via the Hathi Trust Digital Library, www.hathitrust.org. You can also borrow them from the Miller Library.) It was a tremendous shock to the horticultural community when Wilson and his wife perished in a car crash in October 1930. He skidded off the road in Worcester, Massachusetts, during a rainstorm, while returning from a trip to New York. Like Sargent, he, too, was given wide recognition and many memorial services.

It was not until after World War II that the Arnold Arboretum added to its herbarium collections with new collecting trips. Trips in the Western Hemisphere included Jamaica, Panama, Mexico, Puerto Rico, Central America and Argentina. When China became unavailable for botanic expeditions under Communist rule, collecting shifted to places such as Hong Kong, New Guinea, Japan and Korea—the latter two being visited after a 50-year hiatus. Compared to those of Wilson and Rock, collecting trips became shorter and more focused on smaller geographic tracts.

The legacy of Sargent and the early collectors is still very palpable at the Arnold. Sargent realized that extensive collecting would not only help deepen our understanding of the similarities between the floras of eastern Asia and the eastern U.S. but also result in new horticultural plants suitable for much of North America. Wilson, Rock and others were his eyes into the floristic wonders of the Far East. The Arnold Arboretum is a remarkable institution built upon the foresight, diligence and labors of such pioneers.

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Occasional Tools

Text and Photos by Cass Turnbull

I've been gardening for a long time. I'm not saying exactly how long, but if I had planted a Campbell's magnolia when I started, it would be blooming by now.

During the course of those years, I've narrowed down the tools I carry on my truck. Most of them—like the fan rakes, tarps and gloves—I use almost daily. But then there are those tools that have earned their place by being essential for certain infrequent jobs. Some of them are so big or expensive that they probably only make sense to own if you are in the business: the eight-foot orchard ladder, the long-reach pruner, the ball cart, various lawn-rehab equipment. But others are more compact and less expensive. Several seem unlikely candidates for keeping on a landscape truck, but I was surprised to learn from some fellow gardeners that they also carried a crowbar, bolt cutters and a towel.

The following is a partial list of my "occasional tools," with descriptions of what they are and what they are used for. You can find them online or at a garden center, hardware store or home improvement retailer.

The **baby mattock** is a hand tool that looks like a miniature mattock. It has a single pick on one end and a thick hoe blade on the other. I find it essential when removing large areas of ivy. As you roll the ivy up toward you like a carpet, you use the hoe end to chop reluctant roots free. I also use it when gently removing thin layers of sod around delicate tree roots. And it is supremely useful—in fact the only tool I know of—for loosening grass that is growing out of river rock mulch beds so that it can be weeded out. (People seem to think that river rock and various landscape fabrics and plastic sheeting will keep the weeds down, but it really only makes the weeds much harder to remove later.)

The **pry bar**, also known as a Texas toothpick or the "tool of ignorance," is just a four- or six-foot steel rod about an inch thick. It can have a pointy end and a flat end. It is used to pry or lift up stuff, like plants or concrete—and sometimes to scootch heavy things over a tiny bit. You can also use it to break up an unwanted concrete path by slamming it straight down. When using it to pry, you jab it into the ground and push the high end forward or, alternately, pull it back. Used with a fulcrum (some big rock or piece of firewood found lying around the yard), it will demonstrate to you the incredible power of leverage. I have amazed many male-type-people with this trick to get a stubborn transplant, stump, rock or unwanted woody plant out of the ground. The words "mechanical advantage" have a profound meaning for me, and they will for you, once you

have learned to use a pry bar. If you really want to soup up your tool shed, go online and order yourself an **all-steel shovel**. It is a cross between a pry bar and a transplanting shovel. It will slam through big roots, the handle will never bend or break, and—like the pry bar—its heavy weight will work for you.

For a really big job, such as removing a bank of half-dead junipers, I carry a **choke chain**. It is a long (10- to 15-foot) chain made of one- to two-inch links. It has a grab hook on each end. After half cutting back the target plants, and half digging them out, then you find the base of the shrub and wrap the chain around it, maybe a couple of times, and secure it with the hook to the links. That's the choke. The foliage you left on the plant will help keep the chain in position.

The other end gets attached to your neighbor's boat hitch the same way. Stand back (so you don't get hit if the chain breaks) and direct the driver to pull forward slowly by yelling, "Forward!" When the slack runs out and the truck stops, the driver should slowly push down on the gas pedal. Do this until the plant gives it up (it feels so good!), or until the wheels start to spin. You can smell the rubber! If it doesn't come out the first time, have the driver take a more serious run at it. Or try pulling from a different direction. Or cut a few more roots with your steel shovel, lopper or a root saw. Just hope that his Dodge truck's utility bumper is really "Ram tough."

During the beginning of the process, the chain can come undone as the driver is first pulling forward. Then you tell the driver to stop by yelling "Ho-o-o!" Don't try to have a conversation with the driver. S/he can't hear you. Just use one- or two-word commands, really loud. I tell my assistant to pretend the driver is deaf and blind. After the truck stops, then yell "Back it up!" Then shout, "Ho-o-o!" loudly again to stop the truck. Reattach the chain, and start the process over. I've pulled out a tam juniper (*Juniperus sabina* 'Tamariscifolia') that was so big we had to roll it up a ramp like a giant Oreo cookie on in its side. It filled the entire bed of my full-sized truck.

An old saying I learned at the Seattle Parks Department was, "If it doesn't work, get a bigger hammer." And at your local hardware or lumber store they will have a bigger hammer. The **two-pound hammer** comes in handy when things such as stakes aren't going in and you are hurting your hands with a regular-sized hammer.

But for big staking jobs, a two-pound hammer is no substitute for a **post pounder**. Nor is a sledge hammer for that matter! The post pounder is my most-borrowed tool. It is essential for people staking newly planted trees, and for building compost piles the Cass Turnbull way. The pounder is a two-foot long, four- to five-inch diameter, heavy metal tube that is closed on one end. It is open on the other end and has handles on opposite sides of the body. It looks a lot like the battering ram you see the police use on TV to break down doors to the bad guy's house during an arrest. A good thing to know ahead of time is that you should slide the open end over your stake while it is leaning on its side. Then,

tilt the whole thing up to the vertical. Don't try to slip it over the stake end from a standing position; you'll hurt yourself. Then you repeatedly raise the pounder up and slam it down so that it drives the stake into the ground. The weight of the thing, again, does most of the work for you. And just one more tip: Before you start pounding, make sure your post isn't leaning forward or back, or right or left, but is standing nice and straight. A crooked post makes you look bad.

I carry a can of green **camouflage spray paint** to make peoples' yards perfect for special occasions, like the garden tour. Many yards have exposed utilities like white PVC risers on the sprinkler heads. These will subconsciously tug at your eye, detracting from the general feeling of floral perfection. And we can't have that.

I always keep a few short **Rebar stakes** in my tool box, too. They come in about one- to two-foot lengths at Home Depot. I use them to secure steppingstones on hillsides by pounding them (with my two-pound hammer) into the ground at the leading, or downhill, edge of each stone. Two or three stakes will do. They prevent the stones from slipping forward as you head downhill. I also use them as emergency stakes to tie up, say, a big transplanted shrub that might tip over in the wind. And I also use them when digging and leveling garden path steps.

To make a step, I dig down on the high side and fill on the low side. Then I use a piece of carefully collected, extra-long firewood or tree branch (three or four feet long, and about four inches-plus around), to make the leading edge. It keeps the soil from sloughing off. I pin down that piece of wood with the rebar in the front. It's nice if there is a slight bend to the wood, and if it already has moss on it. Then repeat for the next step. And you can do the same thing with longer branches to line the entire downhill side of a path on the proverbial slippery slope.

If it is very muddy, you can add crushed rock as a top dressing (don't use gravel or, God forbid, pea gravel). I have used the similar system of found-wood and taller stakes to make a low wall to hold the dirt from slippage on the high side of a trail. It looks *wabi sabi* to me—beauty found in imperfection and the transience of nature. But my husband calls it "Girl Scout" construction. You will have to periodically replace the limbs that have rotted out, but they last surprisingly long and are easy to replace, if you keep your eyes out for suitably sized windfall. ~

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Plant Answer Line

Q&A from the Miller Library's Plant Answer Line

Flowering Currant and Blister Rust

By Rebecca Alexander

This regular column features Q&A selected and adapted from the Elisabeth C. Miller Library's Plant Answer Line program. If you'd like to ask a plant or gardening question of your own, please call (206) 897-5268 (UW Plant), send it via the library website (www.millerlibrary.org), or email directly to hortlib@uw.edu.

QUESTION: I have a row of four flowering currants, one *Ribes sanguineum* and three *R. sanguineum* 'King Edward VII' cultivars. Each spring, they leaf out beautifully and produce lovely flowers. For the past two years, the leaves of the three cultivars began turning a rusty orange-brown by mid-May or June. I have pruned them so they have better air circulation, cleaned out beneath them, and added some compost. Is there anything I can do to prevent this unappealing leaf problem? Is it a disease? Could it be the cause of my neighbor's unsightly heucheras—or vice versa?

ANSWER: I also grow *Ribes sanguineum* 'King Edward VII', and like yours, it has crispy leaves by early summer. In the case of my plant, the culprit is a fungal disease called white pine blister rust (*Cronartium ribicola*). It has not affected the flowering at all; mine looks great in spring. But the disease can present a serious problem for any five-needle pine trees in the area. There's no need for you to worry about your currants catching or causing the rust on your neighbor's heucheras—they have a fungal rust of their very own (*Puccinia heucherae*), which will not affect *Ribes*.

Once you have had the disease diagnosed from plant samples (which you can bring to your local King County Master Gardener Clinic), you may need to delve into garden ethics: Should you continue to grow currants that may endanger pines? I have considered "deposing" my King Edward because I don't want the rust to harm pines. Although I don't see any pines in the immediate vicinity, the spores can

Blister rust infecting an eastern white pine. (Photo by Marek Argent, courtesy Wikimedia Commons)

Blister rust on a *Ribes* leaf. (Photo by Robert L. Anderson, USDA Forest Service, Bugwood.org)

travel significant distances (as the information below will show).

Ribes species are alternate hosts for the fungal disease, but beyond superficial leaf spotting and occasional leaf drop, there is usually little significant damage to the plant from infection. However, an infection can cause spotting on the needles and cankers on the branches of

White Pine Blister Rust: An Overview

Beginning in the early 1900s, foresters attempted to slow the spread of white pine blister rust by eradicating various species of currant. This method of protection against the disease has largely been abandoned. It was costly, and—as stands of white pine disappeared—the potential benefits no longer warranted the expense.

> *"The disease was introduced into North America in the early 1900s on seedlings of eastern white pine grown in Europe. It was not native to Europe, however, but is believed to have been introduced into that continent from Asia. Its introduction to North America resulted in one of our most serious outbreaks on conifers. White pine blister rust is now widely found in northeastern United States, the Lake States, and the West. It was introduced into British Columbia in 1910 and has spread from there throughout most white pine regions of Washington, Idaho, Montana, Wyoming, Oregon, and California.*
>
> *"In North America, white pine blister rust has caused more damage and costs more to control than any other conifer disease. Since the 1920s, millions of dollars have been spent on the eradication of the alternate host,* Ribes, *and thousands of white pine stands have been severely damaged. In the western United States and Canada, some stands have been completely destroyed. When the main stem of a tree is invaded, death is only a question of time."* [from "Diseases of Pacific Coast Conifers," by Robert F. Scharpf. Washington, D.C.: USDA Forest Service Agriculture Handbook 521, revised June 1993]

On the introduction of the disease to the Pacific Northwest:

"In the West, *C. ribicola* was first detected in southern, coastal British Columbia on *Ribes nigrum* [1910]. In settled areas, this cultivated species contributed significantly to early spread, but the infestation soon spread across British Columbia, including the dry, pine-free, interior areas. Even in far southeastern Washington, *R. nigrum* was infected at an early date, even though there were no white pines nearby and the nearest infestation was 300 km away." [from P.J. Zambino, "Biology and Pathology of Ribes and Their Implications for Management of White Pine Blister Rust" in "Forest Pathology" 40 (2010) 264–291]

pine trees. Eventually, those branches may die off, and if the infection is severe, the tree can die. According to Washington State University Cooperative Extension's "Forest Health Notes" (by Donna Dekker-Robertson et al., accessed online 1/8/2015), white pine blister rust is the most serious disease of five-needle pines in the Pacific Northwest. Western white pine (*Pinus monticola*), limber pine (*Pinus flexilis*) and white-bark pine (*Pinus albicaulis*) have been particularly hard hit.

In spring, blister rust spores may fly 400 to 800 miles from the pines to infect the leaves of *Ribes* (both ornamental and edible currants and gooseberries may be affected). Once the spores from the infected currants are airborne, they may reinfect pines. There is conflicting information on the safest planting distance to prevent currants from infecting five-needled pines, but there should be a buffer zone of at least 1000 feet.

It is interesting that the straight species *Ribes sanguineum* in your garden has not been troubled by rust, and this may just be good luck combined with environmental factors working in its favor. According to an article in "Forest Pathology" 40 (2010), "Biology and Pathology of Ribes and Their Implications for Management of White Pine Blister Rust," by P. J. Zambino, the native species of *Ribes* most implicated in the spread of white pine blister rust in Washington and Oregon are *R. lacustre, R. bracteosum, R. divaricatum* and *R. sanguineum.*

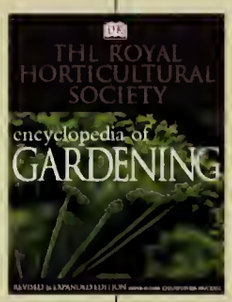
Gardeners growing currants in dense urban areas are unlikely to present much of a threat to our native pine forests. And our native *Ribes* are treasured for their beauty and wildlife value. But if you live close to stands of native white pine, you may want to think twice about planting a currant in your yard. ~

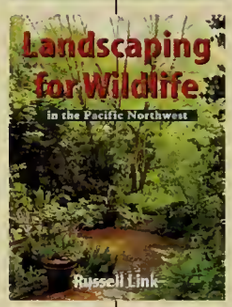
Rebecca Alexander is the Plant Answer Line librarian at the Miller Library, located in the UW Botanic Gardens' Center for Urban Horticulture (3501 NE 41st Street, Seattle).

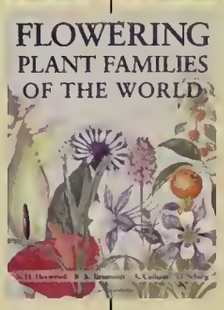
A Conversation *with* Martha Ferguson

By Brian R. Thompson

Martha Ferguson will be retiring in July after 26 years at the Elisabeth C. Miller Library. For many visitors, she has become strongly identified with the library for her considerable depth and breadth of knowledge of the collections. Before she gets away, I tried to capture some of this knowledge by asking how she came to the Miller Library and, especially, what books have been the most meaningful to her during her long career. Below is a summary of that conversation, which includes many direct quotes; Martha is a delightful person to interview!







Gardening Nuts and Bolts

Martha grew up in Snohomish County with a mother who was a "fabulous gardener" and a garden filled with trees, shrubs, bulbs, ornamentals, fruit, berries and vegetables. She had more interest in the garden than any of her three siblings and learned, during her childhood, the importance of gardens for food, flowers, and sharing with friends and family.

For that same basic and broad gardening knowledge in book form, she recommends the "Encyclopedia of Gardening" by Christopher Brickell. First published in 1993, this title has been produced by both the American Horticultural Society and the Royal Horticultural Society through three revised editions, the most recent in 2012.

Both organizations also have published plant encyclopedias, but this is a how-to-garden book, covering everything from pruning to propagation to double-digging your garden. Martha is particularly impressed with the clear explanations of techniques and the quality of the drawings and diagrams. Many of these have been spun off into separate, single-topic books, but here they are all together—a great library for the beginner, "like having 10 to 15 books all in one."

A similar publication, but spread over 10 volumes, is "The New York Botanical Garden Illustrated Encyclopedia of Horticulture," by Thomas H. Everett. Published in 1981, this is both a plant encyclopedia and a guide to almost any gardening term imaginable. Entries cover garden culture techniques, plant anatomy, botanical terminology, landscape design practices and plant pests and diseases. Types of gardens and gardening styles are described, ranging from historical, recreated landscapes to miniature gardens in a bottle. The cultural information is especially valuable and, according to Martha, easy to interpret for the milder climate of our region.

Native Plants

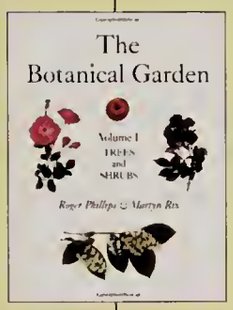
Another important part of Martha's childhood was camping, boating and horseback riding. During these outings, her mother taught her the native plants and trees and their importance—"Our lives depend on plants for clothes, food, and shelter."

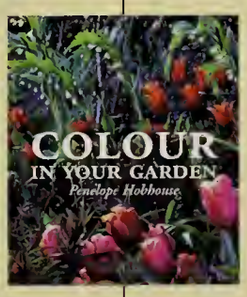
A favorite book that reflects these values is "Landscaping for Wildlife in the Pacific Northwest" (1999), by Russell Link. This is a very accessible book, focusing on the design of a landscape and maintenance practices that provide food and cover for birds and other wildlife, with easy guidelines to follow. Native plants are encouraged, since they have evolved with our native birds and animals, and much of the book's message can be applied to small gardens in an urban environment.

The Importance of Botany

As a young adult, Martha traveled and lived in Britain, Greece, other parts of Europe, and Israel, working in a variety of ways—including picking fruit and other farm jobs—that inspired her to think about gardening as a career rather than a hobby. She also gained an appreciation for the native plants of other countries and regions, the subject of "Flowering Plants of the World," edited by V. H. Heywood and published in 1978.

Heywood's widely acclaimed survey was updated in 2007 as "Flowering Plant Families of the World" and includes three additional authors and many of the more recent taxonomic changes. Each of the 506 plant families is profiled for its economic value, including its use for food, timber, fiber, oil and medicine, as well as in ornamental horticulture. Martha finds the range maps particularly interesting because they show how some families have wide ranges, while others have very small ones—and how the ranges of some families are continuous, while those of others are dispersed over isolated and widely separate locations.





Career Change

Upon her return home, Martha pursued her interest in horticulture through course-work at Edmonds Community College, and by working at nurseries and as a gardener—including four years installing and maintaining interior plants. Her husband Charles observed that she was happiest when working with plants or books, but at the time she didn't know of a way to combine her interests into a vocation. While enrolled in the library technician program at Highline Community College, she heard about the Miller Library and started volunteering before even finishing the program. She found it amazing that there was such a place and says, "To work in a plant library was, and still is, fabulous."

At the Miller Library, she soon added new favorites to her list. "The New Royal Horticultural Society Dictionary of Gardening" she describes as more an encyclopedia than dictionary—with a greater emphasis on botany than horticulture—but at the same time an excellent resource for all cultivated plants, including fruits and vegetables. She thinks it is still a very useful resource, even though it was published back in 1992. While there are no pretty pictures, she says, it is "packed, packed, packed with information."

Martha also loves anything by Roger Phillips and Martyn Rix, having bought the "Trees in Britain" (written by Phillips in 1978 before his professional partnership with Rix began) while still in Britain. Phillips and Rix have produced many books noteworthy for their close-up photography and use of side-by-side comparisons of plants with similar cultural needs. Martha describes their books on shrubs, perennials, bulbs, annuals, vegetables, conservatory/indoor plants—and several on roses—as "beautiful and scientifically accurate."

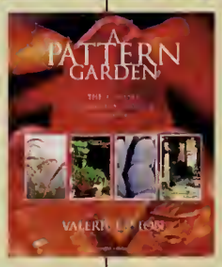
"The Botanical Garden" (2002) is "their pièce de résistance" and looks at the broader perspective of plant families, but uses the same techniques of close comparisons to help with identification. Studying their work encouraged Martha to learn more about plant families and other groupings, and their attributes and characteristics.

Inspiration

Martha discovered that many of the books in the Miller Library provided inspiration to complement her chosen reference works. Some of the best are by Jane Brown, the English garden historian who has written a number of books (the Miller Library has 14), many of them biographies of important garden makers. Martha finds that Brown is a very effective storyteller—"You don't have to be a gardener or landscape designer or historian to understand."—while also skilled at discovering what influenced her subjects and what were the politics or social expectations of the time that impacted their gardens.

Two favorite titles are from early in both Martha's career at the Miller Library and author Brown's career in writing. "Gardens of a Golden

Afternoon" (1982) is the story of the highly successful collaboration between Edwin Lutyens and Gertrude Jekyll in designing homes and gardens, especially from 1890 to 1914. The second is "Vita's Other World" (1985), written at a time when Vita Sackville-West was perhaps best known for her novels and poetry, instead of as the creator of Sissinghurst.



A Gardening Explosion

Martha describes her early years at the Miller Library as the time of a gardening explosion, created and fostered by writers (local, national and international) and inspiring local personalities in gardening, many of them women. This time also saw the rise of nurseries like Heronswood and organizations like the Northwest Horticultural Society, the Northwest Perennial Alliance, Seattle Tilth, the Master Gardeners, the P-Patch program and the Center for Urban Horticulture.

This energy and growth was reflected in the books of the time. Martha observed that they became much more visual, used more color photography, and had improved printing and design, "inspiring me and a whole generation of gardeners." A favorite example of this was "Color in Your Garden" (1985) by Penelope Hobhouse, a book that reaches back to the ideas of Gertrude Jekyll for some of its inspiration. Another favorite author of the time is Rosemary Verey, who—together with Hobhouse—Martha thinks "did more for gardening than almost any other authors at that time; their books were stunning!"

Design

There are other, more recent books on design that Martha recommends, including "Color by Design" (1998) by Nori and Sandra Pope, essentially a tutorial on how to paint with plants. However, she saved her greatest praise for "A Pattern Garden" (2007) by the former manager of the Miller Library, Valerie Easton.

This book makes garden design accessible and understandable, even for people who are not design professionals, by breaking down the process into concise chapters, each on an important element of design. Throughout, the goal is to help the reader create a home garden that is satisfying and functions successfully, while also being very personal. Martha has embraced this philosophy in her own gardening, as she sees this activity as one of the few opportunities we each have to create something that is completely for ourselves.

"A Pattern Garden" was in part based on "A Pattern Language," a 1977 book by Christopher Alexander and several others that promotes personal involvement and responsibility in designing and creating all private and public spaces, including homes, work places, streets and common areas throughout communities. Martha finds in this earlier book a lot of the principles she learned while living in Europe, including the

Thank You, Martha!

To many people Martha Ferguson was the face of the Miller Library—the friendly woman who sat at the front desk, who greeted them and guided them when asked. If the Miller Library is the living room of the Puget Sound horticultural community, as I like to think of it, then Martha has been our hostess all these years—the calm, generous, helpful hostess. Martha loved assisting students, and the public alike, connect with information about plants and gardens. As her co-worker I am sad, wanting her to stay with us, continuing to greet, organize, and enrich our lives with her generosity and grace. As her friend, I am happy that she is moving on to an exciting stage of her life. Well done, Martha! Thank you for these wonderful years.

—Sarah Reichard, Director, UW Botanic Gardens

importance of being creative and mindful of your environment, both natural and human.

Gardening Is for Everyone

To conclude our conversation, Martha shared some of her philosophy about gardens and gardening. She observed how gardens can be made by anyone, old or young, rich or poor, and almost anywhere—and recalled how she has gardened everywhere she has lived, even in rental apartments or farm cottages.

Often gardens survive their makers by a long time, but change is inevitable. Martha thinks of gardens as living things themselves, summarizing that "Daily life is important, and gardens are a big part of that!"

Brian R. Thompson is the Manager and Curator of the Elisabeth C. Miller Library of the University of Washington Botanic Gardens. He is also a member of the "Bulletin" Editorial Board.

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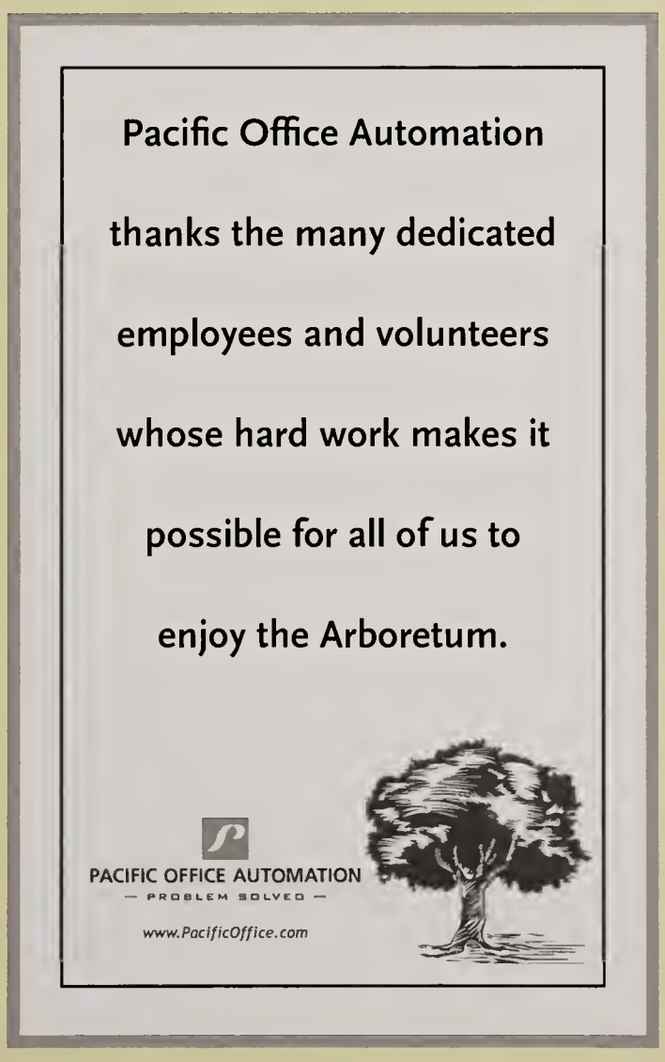

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